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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,301	09/19/2001	Sung-lyong Lee	P56585	8147
7590	04/08/2004		EXAMINER	
Robert E. Bushnell Suite 300 1522 K Street, N.W. Washington, DC 20005			LEE, CHRISTOPHER E	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/955,301 Examiner Christopher E. Lee	LEE ET AL. Art Unit 2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 September 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to because of the following informalities:

In the claim 6, it recites the limitation “said at least one function-extending module comprises a plurality of function-extending modules” in lines 1-2. However, the subject matter “at least one function-extending module” may not be able to comprise the subject matter “a plurality of function-extending modules” because the subject matter “at least one function-extending module” could be one function-extending module, and thus the potential interpretation of the limitation, such as “one function-extending module comprises a plurality of function-extending modules” does not make sense at all.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-5, 7-11 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim 2 recites the limitation “one of the IEEE 1394 ports” in line 7. There is insufficient antecedent basis for this limitation in the claim. In fact, it recites the limitation “at least one function-extending module comprises first and second IEEE 1394 ports” in line 2, and the limitation “one of the IEEE 1394 ports of any other said at least one function-extending module” in lines 7-8. However, the claim is indefinite for failing to particularly point out and distinctly claim the subject matter “the IEEE 1394 ports” which the Applicants regard as “first IEEE 1394 ports of at least one function-extending module” or “second IEEE 1394 ports of at least one function-extending module”. Therefore, the term “one of the IEEE 1394 ports of any other said at least one function-extending module” could be

considered as --one of the first IEEE 1394 ports of any other said at least one function-extending module-- in light of the specification since it is not clearly defined in the claims. The claims 3-5 are dependent claims of the claim 2.

The claim 7 recites the limitation “the module rack” in line 2. There is insufficient antecedent basis for this limitation in the claim. Therefore, the term “the module rack” could be considered as --a module rack-- since it is not clearly defined in the claims. The claims 8-11 are dependent claims of the claim 7.

The claims 9 and 14 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. In this case, the Examiner cannot interpret the subject matter “detachably connecting” in line 4 of the claim 9, and in line 6 of the claim 14 because the term “detachably” is an adverb of “detach”, which is defined as ① “to separate” and ② “disengage”, and the term “connecting” is defined as “joining and fastening together” according to the Collegiate Dictionary 10th Ed., published by Merriam-Webster’s. In other words, the Examiner cannot definitely understand the subject matter “detachably connecting” within the scope of the claimed invention. Therefore, the Examiner cannot perform a proper search of prior art for the claim rejection based on the prior art.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 6-8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. [US 5,621,659 A; hereinafter Matsumoto] in view of Drucker [US 5,591,984 A].

Referring to claim 1, Matsumoto discloses an apparatus (i.e., AV system in Figs. 16A and 16B) for detachably connecting at last one function-extending module (i.e., operation devices, e.g., VTR 11 and MDP 21 in Fig. 16B) to a base module (i.e., central control device, e.g., TV 1, especially Output Unit 8 in Fig. 16A) capable of reproducing audio/video (AV) data to be communicated between said at least one function-extending module and said base module (See col. 20, lines 25-38), said apparatus comprising: a detecting unit (i.e., detector 7a-c in Fig. 16A) for detecting said installation of said at least one function-extending module (See col. 6, lines 43-48) and for generating a detection signal (See col. 6, lines 48-49); a switching unit (i.e., selector 4 of Fig. 16A) for connecting said base module to said at least one function-extending module (See col. 5, line 66 through col. 6, line 11); and a control unit (i.e., AVC 3 of Fig. 16A) for controlling said switching unit so that said at least one function-extending module is connected to said base module according to said detection signal from said detecting unit (See col. 13, lines 46-61 and col. 17, 10-26).

Matsumoto does not teach said at last one function-extending module is detachably inserted into a module rack, and connected to said base module in a daisy-chain fashion.

Drucker discloses a daisy-chain bypass arrangement (See Abstract and Fig. 1), wherein at last one function-extending module (i.e., modules 14-1 ... 14-N in Fig. 1) is detachably inserted into a module rack (i.e., detachably inserted into slots of backplane; See col. 2, lines 16-27), and connected to a base module (i.e., source) in a daisy-chain fashion (See col. 2, lines 23-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied said daisy-chain bypass arrangement, as disclosed by Drucker, to said apparatus (i.e., a system comprising a central control device and operation devices), as disclosed by Matsumoto, so as to insert said at last one function-extending module into said module rack in order to connect said base module to said at last one function-extending module in said daisy-chain fashion, for the advantage of providing an arrangement for use in said apparatus (i.e., electronic system) which has said module rack (i.e., backplane) defining a plurality of slots each for demountably holding a respective one of at last one function-extending module (i.e., a plurality of plug-in modules; See Drucker, col. 1, lines 35-39).

Referring to claim 6, Matsumoto teaches said at least one function-extending module (i.e., operation devices) comprises a plurality of function-extending modules (e.g., VTR 11 and MDP 21 in Fig. 16B), and wherein said switching unit (i.e., selector 4 of Fig. 16A) establishes interconnections between respective function-extending modules (See col. 5, lines 55-60).

Referring to claim 7, Matsumoto discloses a method for connecting at least one function-extending module (i.e., connecting operation devices, e.g., VTR 11 and MDP 21 in Fig. 16B; See Figs. 6A and 6B) a base module (i.e., central control device, e.g., TV 1, especially Output Unit 8 in Fig. 16A) capable of reproducing audio/video (AV) data to be communicated, said method comprising the steps of: detecting whether said at least one function-extending module is installed (See col. 6, lines 43-48); and connecting the detected said at least one function-extending module with regard to said base module (See col. 5, line 66 through col. 6, line 11, col. 13, lines 46-61 and col. 17, 10-26).

Matsumoto does not teach said at last one function-extending module is detachably inserted into a module rack; detecting whether said at least one function-extending module is inserted into said module rack; and connecting the detected said at least one function-extending module in a daisy-chain fashion with regard to said base module.

Drucker discloses a daisy-chain bypass arrangement (See Abstract and Fig. 1), wherein at last one function-extending module (i.e., modules 14-1 ... 14-N in Fig. 1) is detachably inserted into a module rack (i.e., detachably inserted into slots of backplane; See col. 2, lines 16-27); detecting whether said at least one function-extending module is inserted into said module rack (See col. 3, lines 16-28); and connecting the detected said at least one function-extending module in a daisy-chain fashion with regard to said base module (See col. 2, lines 23-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied said daisy-chain bypass arrangement, as disclosed by Drucker, to said method, as disclosed by Matsumoto, so as to insert said at last one function-extending module into said module rack in order to connect said base module to said at last one function-extending module in said daisy-chain fashion, for the advantage of providing an arrangement for use in said apparatus (i.e., electronic system) which has said module rack (i.e., backplane) defining a plurality of slots each for demountably holding a respective one of at last one function-extending module (i.e., a plurality of plug-in modules; See Drucker, col. 1, lines 35-39).

Referring to claim 8, Drucker teaches checking for presence of a previously installed function-extending module (See col. 2, lines 50-57; i.e., sensing the current flow for checking if a slot is empty); and connecting said base module (i.e., source) to said at least one function-extending module (i.e., one of modules 14 in Fig. 1) when said previously installed function-extending module is not present (See col. 3, lines 10-15; i.e., bypassing an empty slot, and thus coupling the source to the module in the next slot).

Referring to claim 10, Drucker teaches checking for presence of previously installed function-extending modules (e.g., modules 14-1 ... 14-(N-1) in Fig. 1; See col. 2, lines 50-57; i.e., sensing the current flow for checking if a slot is empty); and connecting a newly installed function-extending module (e.g., inserting module 20-N into slot 28-N in Fig. 1) to a function-extending module (e.g., module 20-(N-1) in Fig. 1) which constitutes a last node of a daisy chain of said previously installed function-extending

modules (i.e., in case of last slot 28-N is empty in Fig. 1) when a number of said previously installed function-extending modules is at least two (in this example, the number of modules is N-1 in Fig. 1), and connecting said newly installed function-extending module (i.e., module 20-N of Fig. 1) to said base module (i.e., connecting the module 20-N to source via modules 14-1 ... 14-(N-1) in Fig. 1).

Referring to claim 11, Drucker teaches connecting said detected at lease one function-extending module (e.g., existing modules 14-1 ... 14-(N-1) in Fig. 1) to an installed function-extending module (e.g., newly inserted module 14-N into the empty slot 28-N in Fig. 1) in said daisy-chain fashion (See col. 2, lines 23-26).

7. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto [US 5,621,659 A] in view of Drucker [US 5,591,984 A] as applied to claims 1, 6-8, 10 and 11 above, and further in view of Martinelli et al. [US 6,098,138 A; hereinafter Martinelli].

Referring to claim 2, Matsumoto, as modified by Drucker, discloses all the limitations of the claim 2 including said base module (i.e., central control device, e.g., TV 1, especially Output Unit 8 in Fig. 16A; Matsumoto) comprises an optical/electrical port (i.e., optical/electrical converter 43a of Fig. 16A; Matsumoto) and said at least one function-extending module (i.e., operation devices, e.g., VTR 11 and MDP 21 in Fig. 16B; Matsumoto) comprises first and second optical/electrical ports (i.e., optical/electrical converters 51, 52 or 61, 62 in Fig. 16B; Matsumoto), and wherein said switching unit (i.e., Gate 38-1 ... 38-N in Fig. 1; Drucker) comprising a first switching part (i.e., Gate 38-1 in Fig. 1; Drucker) for selectively connecting said port (i.e., source port coupled to signal line 8 in Fig. 1; Drucker) included in said base module (i.e., source) to one of said first ports (e.g., slot connector coupled to Trace 30-1 in Fig. 1; Drucker) of said at least one function-extending module (i.e., modules 14-1 ... 14-N in Fig. 1; Drucker); and a second switching part (i.e., Gates 38-2 ... 38-N in Fig. 1; Drucker) for selectively connecting one of said second ports (i.e., one of slot connectors coupled to Traces 30-2 ... 30-N in Fig. 1; Drucker) of said at least one function-extending module (i.e., modules) to one of said first ports of any

other said at least one function-extending module (See Drucker, col. 2, line 50 through col. 3, line 15) except that does not expressly teach said ports are IEEE 1394 ports.

Martinelli discloses an apparatus providing connectivity between devices (Fig. 1), wherein said apparatus comprising ports (i.e., optical connectors 40 and 64 in Fig. 5) for an optical link (i.e., link 30 of Fig. 5), which could be substituted by any type of appropriate link connection, for example IEEE 1394 standard (See col. 11, lines 25-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted said IEEE 1394 standard ports, as disclosed by Martinelli, for said ports, as disclosed by Matsumoto, as modified by Drucker, for the advantage of providing an appropriateness of the performance/cost requirements (See Martinelli, col. 11, line 27).

Referring to claim 3, Matsumoto, as modified by Drucker and Martinelli, teaches said detecting unit (i.e., detector 7a-c in Fig. 16A; Matsumoto) sends said detection signal to said control unit (i.e., AVC 3 of Fig. 16A; See Matsumoto, col. 6, lines 48-49), said detection signal indicating whether a corresponding function-extending module is inserted into said module rack (See Matsumoto, col. 6, lines 43-48); and wherein said first switching part (i.e., Gate 38-1 in Fig. 1; Drucker) selectively connects a port (i.e., source port coupled to signal line 8 in Fig. 1; Drucker) provided in said base module (i.e., source) to one of said first IEEE 1394 ports (e.g., slot connector coupled to Trace 30-1 in Fig. 1; Drucker, and IEEE 1394 by Martinelli) of said at least one function-extending module (i.e., modules 14-1 ... 14-N in Fig. 1; Drucker) in response to a control signal (i.e., signal on the control lead 40-1 in Fig. 1) generated by said control unit (i.e., Switch 36-1 in Fig. 1; See Drucker, col. 2, line 50 through col. 3, line 15).

8. Claims 12, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto [US 5,621,659 A] in view of Drucker [US 5,591,984 A] as applied to claims 1, 6-8, 10 and 11 above, and further in view of what was well known in the art, as exemplified by Lach [US 6,363,452 B1].

Referring to claims 12, 13 and 15, most of the claim limitations have already been discussed / addressed with respect to claims 1, 7, 8 and 10, with the exception of a recording medium having program codes implementing said apparatus of claim 1 and said method of claims 7, 8 and 10 in software.

The Examiner takes Official Notice that said apparatus of claim 1 implemented in hardware and said method of claims 7, 8 and 10 could be achieved in all software implementation with the same or equivalent results, using appropriate program codes (i.e., processor instructions), which are stored in a recording medium (i.e., memory), is well known to one of ordinary skill in the art, as evidenced by Lach, at col. 12, lines 3-9.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have implemented said method, as disclosed by Matsumoto, as modified by Drucker, in software, so as to store said appropriate program codes (i.e., processor instructions) into said recording medium (i.e., memory) since it would allow a better flexibility of an implementation than said hardware implementation.

Allowable Subject Matter

9. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

The limitations of claim 4 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that each said switching device comprising a common port and n selection ports, each corresponding to said given function-extending module, and wherein said common port of an *i*th switching device, where *i* is an integer from 1 to n, is connected to said second IEEE 1394 port of said

corresponding function-extending modules, and wherein other n-1 selection ports, excluding said *i*th port, are each connected to said first IEEE 1394 ports of said given function-extending module.

The claim 5 is the dependent claim of the claim 4.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

With regard to Digital Interconnection System,

Haroun et al. [US 5,787,259 A] disclose digital interconnects of a PC with consumer electronics devices.

Tanaka et al. [US 5,598,278 A] disclose system configuration method for audio-video apparatus with digital bus interface.

Ueda [US 6,580,827 B2] discloses information processing apparatus, method and memory medium therefore.

With regard to Modular Device,

Gehrke et al. [US 6,310,992 B1] disclose method and apparatus for interconnecting multiple modular devices in a communication system.

Olarig [US 6,047,343 A] discloses method and apparatus for detecting insertion and removal of a memory module using standard connectors.

With regard to Daisy Chaining,

Brady, Jr. et al. [US 5,123,015 A] disclose daisy chain multiplexer.

Takihara [US 6,253,114 B1] discloses electronic device controller.

With regard to Device Connection,

Lieber et al. [US 6,658,504 B1] disclose storage apparatus.

Gibart et al. [US 6,484,215 B1] disclose system having I/O module number assignment utilizing module number signal line having pair of inputs adapted for receiving module number signal and propagation of module number signal down stream.

Tanaka [US 5,486,877 A] discloses audio visual system with automatic closing of a bus circuit when an AV unit is disconnected.

Hanai [US 5,541,670 A] discloses electric apparatus and connector.

With regard to Switching,

Duckwall [US 5,784,648 A] discloses token style arbitration on a serial bus by passing an unrequested bus grant signal and returning the token by a token refusal signal.

McHale et al. [US 5,852,655 A] disclose communication server apparatus having distributed switching and method.

Sauber [US 6,256,700 B1] discloses bus/port switching system and method for a computer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 703-305-5950. The examiner can normally be reached on 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher E. Lee
Examiner
Art Unit 2112

cel/ *[Signature]*

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